WHAT IS CLAIMED IS:

1. A data storage device including:

a plurality of head/surface combinations each including a moveable storage surface containing adjacent data storage tracks and a head arranged to transfer information with the data storage tracks, the head having a width defining a maximum track density between adjacent data storage tracks; and

means optimizing the data storage track density of each storage surface.

2. The data storage device of claim 1, wherein the plurality of head/surface combinations comprises:

a plurality of heads each having a respective width, and

a plurality of moveable storage surfaces having a plurality of adjacent data storage tracks and arranged so that at least one head confronts each storage surface, and

the means optimizing the data storage track density comprises:

an arrangement of the data storage tracks at a pitch defined by the width of the confronting head.

3. The data storage device of claim 2, wherein the storage surfaces further include a plurality of servo sectors arranged at a pitch at least as large as the largest pitch of the data storage tracks on all of the storage surfaces.

4. The data storage device of claim 2, wherein the data storage device is a disc drive and the data storage tracks are concentric on the respective storage surface such that the data storage tracks are radially positioned on the respective storage surface at the pitch.

5. The disc drive of claim 4, wherein the storage surfaces further include a plurality of servo sectors arranged at a pitch at least as large as the largest pitch of the data storage tracks on all of the storage surfaces.

6. A process of optimizing densities of data storage tracks on each of N storage surfaces of a data storage apparatus, where N is an integer, the process comprising steps of:

a) defining a nominal track density for the data storage apparatus;

b) selecting at least N heads each having a known width;

c) defining a servo band density at a pitch that is at least as great as a pitch of the nominal track density;

d) associating each head with a respective one storage surface to form a head/surface combination having a track density on the storage surface defined by the width of the head of the respective combination;

e) for each head/surface combination, calculating an arithmetic combination of a representation of the

respective track density and a representation of the servo band density; and

f) storing each of the calculated arithmetic combinations.

7. The process of claim 6, wherein each arithmetic combination is a ratio of a representation of the respective track density and a representation of the servo band density.

8. The process of claim 6, wherein step (f) is performed by storing the respective arithmetic combination to a selected track on the respective storage surface.

9. The process of claim 6, wherein step (e) is performed based on the servo band density and the respective track density.

10. The process of claim 6, wherein step (e) is performed by calculating an arithmetic combination for each head/surface combination as $\beta_i = \frac{DTPI_i}{SBPI}$, where $DTPI_i$ is the track density of the respective storage surface and SBPI is the servo band density.

11. The process of claim 6, wherein the average track density of the storage surfaces for the respective heads selected at step (d) is at least as great as the nominal track density.

12. The process of claim 6, wherein N>1.

13. The process of claim 6, further including

g) calculating recording parameters of a data storage surface during operation of the data storage apparatus based on the value of the respective arithmetic combination and nominal recording parameters.

14. The process of claim 6, wherein the head associated with a respective storage surface at step (d) defines a maximal data density for the respective storage surface, and the process further including the step:

g) defining a nominal data density for the data storage apparatus, and

and step (e) is performed based on representations of the nominal data density, the nominal track density, the maximal data density for the respective surface and the servo band density.

15. The process of claim 14, wherein the servo band density is calculated during step (c) as $SBPI = \alpha \cdot TPI_{nom}$, where $\alpha>1$ and TPI_{nom} is the nominal track density.

16. The process of claim 15, wherein step (e) is performed by calculating the arithmetic combination for each head/surface combination based on $\frac{\alpha}{N}\sum_{i=0}^{N-1}(\beta_i \cdot BPI_i) = BPI_{nom}$, where β_i is the respective arithmetic combination, BPI_i is the respective maximal data density and BPI_{nom} is the nominal data density.

17. The process of claim 13, wherein step (f) is performed by storing each value of β_i to a selected track on the respective storage surface.

18. A process of operating a data storage device having a plurality of data storage surfaces and respective confronting heads arranged to transfer data between the respective head and data tracks on the respective storage surface, the data tracks on each storage surface being arranged substantially parallel to each other at a respective data track density, each storage surface having servo bands substantially parallel to each other at a servo band density that is substantially the same for each of the plurality of storage surfaces, the storage device further storing a respective value representing a relationship between the data track density for the respective storage surface and the servo band density, the process comprising steps of:

a) retrieving the value for at least one storage surface, and

b) computing the data track density for the at least one storage surface based on the retrieved value and the servo band density.

19. The process of claim 18, further including the step of:

c) computing additional parameters associated with the at least one storage surface based on nominal storage device parameters and the retrieved value.

20. The process of claim 19, wherein the additional parameters are selected from the group consisting of a maximum number of data tracks on the at least one storage surface, a write fault position threshold, and a write fault and velocity threshold.